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Innovative and Technology-Based Women Entrepreneurs in Turkey: Capital and Performance

Türkiye’de Yenilikçi ve Teknoloji Tabanlı Kadın Girişimciler: Sermaye ve Performans

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ABSTRACT

This study explores the association of social, cultural, and economic capital with the performance of women entrepreneurs established in Turkey’s technoparks. It contributes to the limited set of women’s entrepreneurial studies in developing countries such as Turkey. In addition, it seeks to understand the relative role of different capital factors in women’s success as entrepreneurs. This has two major implications: the first is that the findings will provide empirical evidence supporting the theories suggested in the entrepreneurial literature on the relationship between different capital factors and entrepreneurial performance. The second is that the findings will inform the decision makers who provide entrepreneurial support. We will address these factors within the framework of Bourdieu’s concept of social, cultural, and economic capital classifications.

The data in this paper comes from surveys conducted in 2015 on 196 women entrepreneurs operating in 24 technoparks in 13 of Turkey’s provinces. The statistical model employs logistic regression because the outcome variable “being successful” is binary. We defined a successful entrepreneur as one who has either achieved high growth performance within the last three years or who is currently exporting their products or services. The model includes two control variables and twelve independent variables as proxies of cultural, social, and economic capital. The results show that some of the proxies selected for social and cultural capital are statistically associated with successful women entrepreneurs. Having previous work experience, having three or more partners, and the age of the venture are found to be positively associated with success, whereas having a doctorate-level education is negatively related to it. It is interesting to note that previous entrepreneurship experience has no statistically significant association with entrepreneurial success. Furthermore, none of the selected proxies for economic capital has a

statistically significant relationship with being a successful entrepreneur. Moreover, operating in ICT and software sectors is found to be negatively associated with successful performance. This study will contribute to closing gaps in the existing literature that analyzes women entrepreneurs in non-western developing countries and non-traditional industries and to providing a better understanding for developing policies to promote successful women entrepreneurs.

Keywords: Women entrepreneurs, social capital, cultural capital, economic capital, technology-based entrepreneurship

ÖZ

Bu çalışma, sosyal, kültürel ve ekonomik sermaye ile Türkiye'deki teknoparklarda iş yapmakta olan kadın girişimcilerin performansı arasındaki ilişkiyi araştırmayı amaçlamaktadır. Türkiye gibi kalkınmakta olan ülkelerde gerçekleştirilen kadın girişimciliği çalışmalarına katkı sağlamanın yanı sıra, kadın girişimcilerin girişimcilik başarılarıyla farklı sermaye faktörlerinin ilişkisini anlamak iki temel çıkarımı ortaya koyacaktır: Birincisi, bu konuda mevcut girişimcilik literatüründe yer alan teoriler açısından ampirik bulgular elde etme, ikincisi ise girişimcilik alanında kamu desteği sağlayan karar mercilerinin kararlarına ışık tutmaktır. Söz konusu sermaye faktörleri açısından Borudieu'nun sosyal, kültürel ve ekonomik sermaye sınıflandırması uygulanmıştır. Çalışma kapsamında, 13 ilde kurulmuş bulunan 24 teknoparkta işyeri sahibi olan 196 kadın girişimciye anket uygulanmıştır. Çalışmanın bağımlı değişkeni başarılı olmak olarak seçilmiş ve son üç yılda hızlı büyüyen ya da ihracat yapan girişimci kadınlar başarılı olarak tanımlanmıştır. Lojistik regresyon modeline iki adet kontrol değişkeni ile sosyal, kültürel ve ekonomik sermaye kapsamında 12 adet bağımsız değişken dahil edilmiştir. Analiz sonuçları sosyal ve kültürel sermaye kapsamında seçilen değişkenlerden bir kısmının istatistiksel olarak kadın girişimcilerin başarılarıyla ilişkisi olduğunu göstermektedir. Bu çerçevede, iş tecrübesine sahip olmak, üç ya da daha fazla ortağa sahip olmak ve firmanın yaşının başarıyla pozitif yönde ilişkisi olduğu tespit edilmiştir. İlginç bir şekilde, daha önce girişimcilik deneyimine sahip olma ile başarı arasında bir ilişki saptanmamıştır. Diğer yandan, doktora derecesine sahip olmanın başarıyla negatif yönde ilişkisi olduğu görülmüştür. Ekonomik sermaye kapsamında seçilen değişkenlerin hiçbirinin, girişimcinin başarıyla istatistiksel olarak anlamlı düzeyde ilişkisi bulunmamıştır. Ayrıca, bilgi iletişim teknolojileri ve yazılım sektöründe iş yapmanın başarıyla ters yönlü ilişkisi olduğu tespit edilmiştir. Bu çalışmanın gelişmekte olan ülkelere ve geleneksel olmayan sektörlerde çalışan kadın girişimciler konusunda mevcut literatürdeki eksikliği kapatmaya katkı sağlayacağı ve yüksek teknoloji sektörlerde çalışan kadın girişimcilere yönelik destekleme politikalarının tespitine ışık tutacağı düşünülmektedir.

Anahtar Kelimeler: Kadın girişimci, sosyal sermaye, kültürel sermaye, ekonomik sermaye, teknoloji tabanlı girişimciliği

EXTENDED ABSTRACT

Understanding factors that foster successful entrepreneurs in high-tech sectors is critical to realizing structural changes in an economy. Turkey introduced Technology Development Centers (TEKMER) in 1990, and Technology Development Zones (Technoparks) Law in 2001 in pursuit of promoting knowledge-intensive and high-tech sectors. As of 2017, 65 technoparks have been established in Turkey, of which 53 are active and 12 are in the establishment phase. There are 4,308 firms operating in the technoparks, with 42,015 people employed by them.

On a global scale, the proportion of women entrepreneurs in high-tech sectors is very small and their development prospects are not optimistic. Although the total number of women entrepreneurs doing business in Turkey's technoparks has not officially been provided, GEM's 2017 survey reported that among early stage entrepreneurship activity, there are approximately three female entrepreneurs for every ten male entrepreneurs in Turkey. With this ratio, Turkey holds the highest gender gap in terms of entrepreneurship.

To achieve sustainable social and economic growth, Turkey needs to promote technology-based sectors and diminish the entrepreneurship gender gap. Encouraging more women to open new businesses in high-tech sectors can positively influence both targets.

Studies about women's entrepreneurship in Turkey are still in the early stages, similar to what is reported to be the case in several other developing economies. The focus of the available literature is on identifying the characteristics and problems experienced by women entrepreneurs. There is a significant need to perform empirical studies that link the performance of women entrepreneurs with their characteristics and with other elements of the entrepreneurship ecosystem.

Our motivation in this study is to understand a set of social, cultural, and economic factors that are linked to successful women entrepreneurs who are doing business in Turkey's technoparks. We use Bourdieu's concept of social, cultural, and economic capital classification as the framework for our analyses. This study will contribute to closing gaps in the existing literature that analyzes women entrepreneurs in non-western developing countries and non-traditional industries and to providing a better understanding of how to develop policies aimed at promoting successful women entrepreneurs. In addition, studying the relative roles of different capital factors in women's entrepreneurial success has two major implications: the first is that the findings will provide empirical evidence supporting the theories suggested in the entrepreneurial literature on the relationship between different capital factors and entrepreneurial performance. The second implication is that the findings will inform the decision makers who provide entrepreneurial support, such as the Ministry of Science, Industry and Technology or KOSGEB (Small and Medium Enterprises Development Organization of Turkey).

Within the context of this study, we selected being successful as the dependent variable and defined successful entrepreneurs as those who have either achieved high growth performance within the last three years or who are currently successfully exporting their products or services.

Since our dependent variable, being successful, is a binary measure, we constructed a logistic regression model. Twelve independent variables and two control variables are included in the logistic regression model as proxies of cultural, social, and economic capital. Parents' education level, having a successful entrepreneur within the close family, the age of the entrepreneur at the time of start-up, whether or not the entrepreneur had attended a private school, the entrepreneur's education level, previous work experience, and previous entrepreneurship experience are selected as cultural capital proxies in our model. Number of partners, age of the venture, and whether or not the venture was involved in any joint research and development (R&D) projects with other firms or universities are selected as social capital proxies in the model. Finally, the amount of savings before starting a venture, the scope of financial support received from family, and whether or not the venture received support from the TEKMER program funded by the SME Development Organization are selected as economic capital proxies. Performance scores of the technoparks and the sector that the venture is operating in are the two control variables used in this study.

Data used in this study comes from a larger survey that was conducted in 2015 on 1,112 firm owners who were selected from firms located in 26 active technoparks using simple random sampling with replacement method. To prevent small-scale bias, we included firms from technoparks that host at least 50 firms. Of those involved in the survey, 196 turned out to be women working in 24 technoparks located in 13 different provinces. This study covers data pertaining to these women entrepreneurs.

Our results indicate that some of the proxies selected for social and cultural capital are statistically associated with successful women entrepreneurs. In this regard, previous work experience, having three or more partners, and the age of the venture are positively associated with success, whereas having a doctorate-level education is negatively related to it. Of interest is the fact that previous entrepreneurship experience does not have any statistically significant association with entrepreneurial success. Moreover, none of the selected proxies for economic capital is found to have a statistically significant relationship with being a successful entrepreneur. In addition, operating in the ICT and software sectors is also found to be negatively associated with successful performance.

INTRODUCTION

Entrepreneurs are significant actors in modern economy who pioneer in creating innovations and new business opportunities, which in turn allow for sustainable economic development (Ferreira et al., 2016; Marion, Dunlap, & Friar, 2012). One of the most striking trends in recent history is the evolution of knowledge economy in which knowledge has become an important source of wealth creation.

Unlike the industrial economy where the main determinant of power and social class is financial capital, intellectual capital has become more significant in knowledge economy. Significant occupational changes have been observed with an extraordinary rise in terms of professional and technical employment which is based on intellectual capital and expertise (Bell, 1974, p. 12). Those who participated in the process of knowledge creation, management, commercialization and transfer were able to use their intellectual capital as a factor of production (Castells, 2005, pp. 21–41). This situation led to the emergence of a new type of entrepreneur who seizes the opportunities that come along with technological development. With the increasing economic and social value of knowledge, technology-based entrepreneurship has flourished significantly at a global level. In addition, research and development activities, collaborative practices, and integrating into global value chains has become more significant than ever.

Even though entrepreneurship is traditionally considered as a male dominated activity, participation of women in this arena has been steadily increasing with the support of the transformation into knowledge economy. According to the “Women’s Entrepreneurship” report of Global Entrepreneurship Monitor (GEM, 2017, p. 17), approximately 41 percent of early stage entrepreneurs were women across the 61 economies that were included in the study. In addition, the gender gap which is defined as the ratio of women to men participating in entrepreneurship has narrowed by six percent in 2014 compared to 2012 (GEM, 2017, p. 17).

As one of the fastest growing entrepreneurial groups, women entrepreneurs contribute significantly to innovation, employment, and economic growth both at the national and the global level (De Bruin, Brush, & Welter, 2006). Participation of

women entrepreneurs in business life also provides additional benefits to the economy since their way of conducting business and perception of opportunities might differ from their male counterparts (Reed, Storrud-Barnes, & Jessup, 2012; Safarik, Wolgemuth, & Kees, 2003).

As more women select entrepreneurship as a career path and grow their businesses not only in traditional industries, but also in high tech industries, improved knowledge on their decision-making process and on factors affecting their business performance becomes more relevant for both theoretical and real-life applications.

Meanwhile, our understanding of this subject is limited especially in the context of non-western cultures, developing economies and in nontraditional industries. Both technological entrepreneurship and women entrepreneurship are emerging fields of research especially in developing economies (Ferreira et al., 2016; Tan, 2008). The majority of studies on women entrepreneurship are based on data from western cultures (Ahl, 2003; Terjesen & Elam, 2013) or focus on traditional industries (Tan, 2008). Similarly, research on entrepreneurship in high-tech industries is concentrated in only a few countries with evident domination of the U.S. (Ferreira et al., 2016).

Studies being concentrated in a few countries and a limited number of sectors may imply difficulties when translating the results across different sectors and countries (Hofstede, 1993). In other words, the findings of previous studies would not be valid for technology driven sectors, non-western cultures or developing economies. Taking these facts into account we suggest that the existing literature can be enriched especially in terms of identifying the factors that have impact on women entrepreneurs who are working in high-tech industries and in developing countries.

Understanding the factors that promote successful entrepreneurs in high-tech sectors is significant to achieve major structural changes in the overall economy. Entrepreneurs operating in high-tech sectors are differentiated from mainstream entrepreneurs by their focus on science and engineering while developing new goods and services and they are more closely linked to technological innovation and emerging markets (Beckman, Eisenhardt, Kotha, Meyer, & Rajagopalan, 2012). As reported in some studies, the proportion of women entrepreneurs in high-tech sectors is very small and

their development prospects are not optimistic (Morris, Miyasaki, Watters, & Coombes, 2006).

Our motivation behind this study is to establish an understanding of a set of social, cultural, and economic factors that are linked with the successful women entrepreneurs whose ventures are located in the technoparks in Turkey. Understanding the relative role of different capital factors in entrepreneurial success has two major implications. The first is that the findings will provide empirical evidence supporting the theories suggested in the entrepreneurial literature on the relationship between different capital factors and entrepreneurial performance. The second implication is that the findings will enlighten the decision makers who provide entrepreneurial supports, such as the Ministry of Science, Industry and Technology or KOSGEB (Small and Medium Enterprises Development Organization of Turkey). We will address these factors within the framework of Bourdieu's concept of social, cultural, and economic capital classification. The data used in this paper comes from surveys which were conducted in 2015 on 196 women entrepreneurs who are currently operating in the technoparks.

The research question of this study involves the statistical analysis of the validness of the following three hypotheses, each of which suggests that the performance of women entrepreneurs who are working in technoparks in Turkey is associated with their cultural capital/social capital/economic capital.

Our expected contribution to the literature is two-fold. First, at global level, we aim to contribute to closing gaps in the existing literature on women entrepreneurs working in non-western developing countries and in non-traditional industries. Second, this study would undertake a pioneering role in investigating factors that are associated with successful women high-tech entrepreneurs at the national level. None of the previous studies on women entrepreneurs in Turkey that we were able to access has investigated this subject empirically for Turkey. Rather, they focus on identifying characteristics of women entrepreneurs and the obstacles they are facing. Most of them use very small sample sizes or cover a very limited geographical area. In this regard, our study provides original and empirical findings, which could help to shed some light on this topic both at the national and global level.

This paper is structured as follows. In section 2, we explain the theoretical context of the study and summarize findings of the relevant literature. Section 3 describes the methodology of the study and provides comparative information with respect to independent variables. Section 4 provides the findings of the model, and the last section discusses the findings and suggests avenues for future research.

LITERATURE REVIEW

In his book 'The Forms of Capital', Pierre Bourdieu (1986) classifies capital into three groups, namely economic, cultural and social capital.

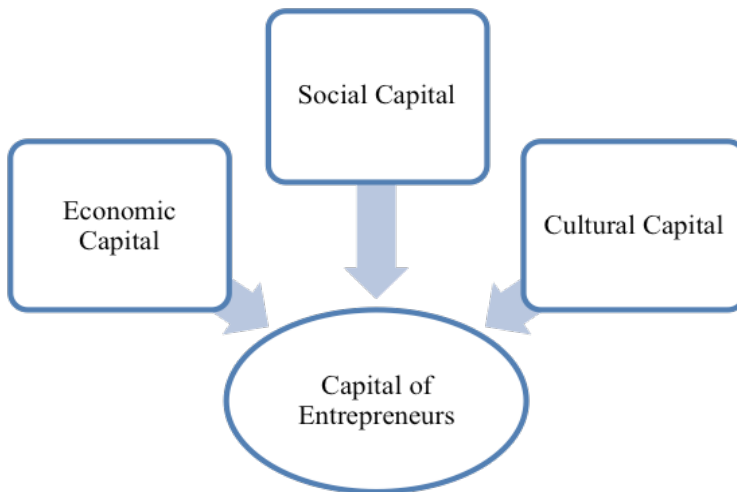


Figure 1: Capital of Entrepreneurs

Source: Adapted from Bourdieu (1986)

He defines economic capital as resources that can be immediately and directly convertible into money.

By cultural capital, he indicates the acquisition of cultural elements (such as skills, tastes, and mannerisms) through being part of a particular social class. In this regard, cultural capital is closely related to socio-economic factors such as gender, age, education level, income level, residency, occupation and the status of the family.

Bourdieu defines social capital as the *“the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition”* (Bourdieu & Wacquant, 1992, p. 119). Based on this definition, the amount of the social capital is determined by the size of the network of connections and on the volume of his/her economic and cultural capital. Network connections can be established through a wide range of channels such as links to other people, memberships, collaborations, and business networks.

Previous research on entrepreneurs has mostly focused on analyzing their personal and behavioral characteristics, educational and professional backgrounds, access to financial resources and networks, and how these factors are related to their performance. While personal and behavioral characteristics, financing, management and performance themes were identified as traditional issues (Carter & Marlow, 2006), comparisons between developing and developed economies has been identified as the new research theme in this field (Poggesi, Mari, & De Vita, 2016).

We derive factors associated with entrepreneurial performance from previous research, and classify them under four headings in congruence with Bourdieu's classification of capital as follows:

- Factors of cultural capital: These include demographic characteristics, perceptual and behavioural characteristics, formal education, training, business and occupational experience (Ahl, 2003; Bowen & Hisrich, 1986; Cansız & Ulusoy, 2017; Crant, 1996; Kantor, 2005; Koellinger, Minniti, & Schade, 2013; Kolvereid, 1996; Sullivan & Marvel, 2011; Yordanova & Tarrazon, 2010; Zapalska, 1997).
- Factors of social capital: These cover a broad range of social networks such as friends, family, customers, inter-firm network ties, and memberships. Moreover, all types of collaborative business operations that improve mutual trust and durable networks (such as R&D collaborations) can also be included in social capital (Cansız, 2014, pp. 27–31; Cansız, 2016, pp. 81–83; Cansız & Ulusoy, 2017; Carr & Sequeira, 2007; Chan & Foster, 2001; Collinson & Gregson, 2003; Crant, 1996; Davis & Shaver, 2012; Greve & Salaff, 2003; Kantor, 2005; Light & Dana, 2013).
- Factors of economic capital: These include financial resources required to initiate

and run a business and access to financial markets (Arenius & DeClercq, 2005; Brodsky, 1993; Cansız, 2014, p. 93; Cansız, 2016, p. 80; Cansız & Ulusoy, 2017; Kantor, 2005; Wang & Wong, 2004).

- Other factors related to the entrepreneurial ecosystem such as location, mobility, access to the markets and non-monetary resources (Cansız, 2014, p. 15; Cansız & Ulusoy, 2017; Kantor, 2005).

Women are found to be more conservative in terms of their growth expectations compared to their male counterparts (Chaganti, 1986; Cliff, 1998). As outlined by Poggese et al. (2016), the time constraints imposed by family responsibilities is stronger on women and they tend to prioritize factors such as personal fulfillment, the search for flexibility, and the desire to serve the community over economic benefits (Anna, Chandler, Jansen, & Mero, 1999; Lee-Gosselin & Grisé, 1990). Second, the networks of women-owned businesses are generally weaker and more informal than that of their male counterparts (Cromie, 1992; Greene, Brush, & Hart, 1999). Third, women entrepreneurs face more financial credibility problems during both the start-up and the growth phase (Carter & Rosa, 1998; Kalleberg & Leicht, 1991; Loscocco, Robinson, Hall, & Allen, 1991).

Technoparks and Women Entrepreneurship in Turkey

GEM (2017, p. 13) classifies economies under three groups according to their economic development level, namely factor-driven, efficiency driven, and innovation driven economies. Accordingly, Turkey is classified as an efficiency driven country, which means it has enhanced its competitiveness with more-efficient production processes and increased product quality, but it is yet to effectively develop knowledge-intensive sectors.

In pursuit of enhancing national competitiveness and promoting knowledge-intensive sectors several initiatives have been implemented in Turkey, especially since the 1990's. Within this context, "Technology Development Centers (TEKMER)" were introduced in 1990 and Technology Development Zones (Technoparks) Law was put into force in 2001 to promote technology-based sectors in Turkey. TEKMER program has been funded by the Small and Medium Sized Industry Development Organization and it aims to facilitate

research and development collaboration between small and medium enterprises (SME) and universities through the establishment of incubation centers in universities. The program provides pre-incubation and incubation support services to firms operating in technology-based sectors (Tekneci & Cansız, 2016, p. 622). These services mainly include providing office space, consultancy, access to the center's facilities, and funding for R&D projects. Meanwhile, technoparks host more established firms. TEKMERs contributed significantly to the development of these sectors and they formed a basis of technoparks in Turkey (Cansız, 2014, pp. 116–117, 138). As of 2017, there are 33 TEKMERs and 65 technoparks, of which 53 are active and 12 are at the establishment phase (Ministry of Science Industry and Trade [MoSIT], 2017).

Since one of the major expectations from technoparks was strengthening the university-industry collaboration and transferring research outputs into new products and services, 65 of the technoparks are affiliated with universities and one technopark is affiliated with the Scientific and Technological Research Council of Turkey. As of March 2017, there are 4,308 firms in technoparks with a total of 42,015 employees. 54 percent of the firms in the technoparks specialize in software and information and communication technologies (ICT) sectors (MoSIT, 2017).

The total number of women entrepreneurs who own ventures in technoparks is not provided in any of the official documents. Moreover, it is reported that among early stage entrepreneurship activity, there are approximately three female entrepreneurs for every ten male entrepreneurs (GEM, 2015, p. 17). With this ratio, Turkey holds the highest gender gap in terms of entrepreneurship among countries that were included in GEM's survey. Meanwhile, Cansız and Özbaylanlı (2017) report that compared to men, women entrepreneurs are benefiting more from the technopark services and opportunities.

Studies on women entrepreneurship in Turkey are still at the infancy stage (De Vita, Mari, & Poggesi, 2014). The main focus of the available literature is on describing characteristics of women entrepreneurs, identifying the obstacles that they are facing and factors that lead their entrepreneurship decision (Çakıcı, 2006; Can & Karataş, 2007; Çelik & Özdevecioğlu, 2001; Sayın, 2011; Ufuk & Özgen, 2001; Tan, 2006). A significant amount of these studies analyze women entrepreneurship without any sectorial specification and within a single geographic coverage (Çakıcı, 2006; Can & Karataş, 2007; Çelik &

Özdevecioğlu, 2001; Sayın, 2011; Tan, 2006). We were able to access only one study that focuses on women entrepreneurs working in high-tech sectors (Atalay & Varol, 2016) but again it covers only one city. Neither of the above-mentioned studies that we were able to access had empirically analyzed factors associated with entrepreneurial performance.

Overall, one of the main obstacles facing Turkish women entrepreneurs is that of role conflicts between their family and professional life and gender-based discriminations (Çakıcı, 2006; Can & Karataş, 2007; Çelik & Özdevecioğlu, 2001; Sayın, 2011; Tan, 2006; Ufuk & Özgen, 2001). Yetim (2008) reports that the impact of this kind of cultural norm is stronger for women living in rural areas compared to those in urban areas. In addition, women entrepreneurs located in urban areas seem to be less hindered by social and financial constraints.

Other hindrances highlighted in the previous studies are lack of previous business experience and knowledge, lack of financial resources, difficulty in finding business partners, unfavorable market conditions, rivalry, political and bureaucratic barriers, and lack of social networks (Çakıcı, 2006; Can & Karatas, 2007; Çelik & Özdevecioğlu, 2001; Sayın, 2011; Tan, 2006).

METHODOLOGY

Different proxies such as revenue, size, internationalization, growth, and survival times have been used to measure whether an entrepreneurial venture is successful or not for a period of time. In this study, we employ two factors as a proxy of business success: (i) whether or not the venture has achieved high growth for the last three years, and (ii) whether or not the venture is exporting.

OECD Eurostat Manual on Business Demography Statistics (2007) defines a high-growth venture as a one with average annualized growth higher than 20 percent per annum over a three-year period, and with at least 10 employees at the beginning of the observation period. We identify high growth firms using this definition.

International expansion has a positive effect on a firm's performance (Zahra, Ireland, & Hitt, 2000). In addition, a strand of studies that focus on global born ventures

suggest that firms that have engaged early in exporting have better chances for high growth and performance (Cieřlik & Kaciak, 2014; Kuivalainen, Saarenketo, & Puumalainen, 2012). Welch, Welch, and Hewardine (2008) comment that exporting serves life changing opportunities for women entrepreneurs through unprecedented business know-how and experience.

We aim to determine the association of different types of capital as classified by Bourdieu (1986) with the successful performance of ventures that are owned by women entrepreneurs and established in Turkey's technoparks. The data utilized in this study were collected in 2015 within the context of the Technoparks of Turkey Towards 2023 Study (Cansız, 2017) through surveys conducted on 1,112 firm owners who were selected from firms located in 26 active technoparks using simple random sampling with replacement method. To prevent small-scale bias, we included firms from technoparks that host at least 50 firms. Among those surveyed, 196 are women and this study will cover data pertaining to these women entrepreneurs.

The biggest constraint of this study is that data was collected through surveys, and the survey method itself has its own weaknesses. First, the data is based on subjective evaluation of the surveyors. Second, for each venture, the surveys were completed by one owner which in turn may hinder the opinions of other owners for the ventures that have multiple owners. This might hinder a full-representation for these ventures.

Since our dependent variable, which is success, is a binary measure, and since we are interested in understanding the relationship between it and a set of independent variables, the appropriate method of analysis as suggested by the literature is logistic regression model (Griffiths, Carter Hill, & Pope, 1987; Gujarati, 2005; Judge, Griffiths, Hill, Lütkepohl, & Lee, 1985; Pindyck & Rubinfeld, 1991). The estimated model is given below, where α and β 's are estimated coefficients in the model:

$$\begin{aligned} \mathbf{Log} [\mathbf{Pr}\{\mathbf{Success}=1|\mathbf{X}\} / (1 - \mathbf{Pr}\{\mathbf{Success}=1|\mathbf{X}=\mathbf{x}\})] = & \alpha + \beta_1 \mathbf{Technopark_performance} + \beta_2 \\ & \mathbf{Sector} + \beta_3 \mathbf{Parents_Education} + \beta_4 \mathbf{Entrepreneur_Family} + \beta_5 \mathbf{Age_Entrepreneur} + \beta_6 \\ & \mathbf{Private_School} + \beta_7 \mathbf{Education_Level} + \beta_8 \mathbf{Work_Experience} + \beta_9 \mathbf{Entrepreneur_Experience} \\ & + \beta_{10} \mathbf{Partner} + \beta_{11} \mathbf{Age_Venture} + \beta_{12} \mathbf{Joint_RD} + \beta_{13} \mathbf{Initial_Capital} + \beta_{14} \mathbf{Financial_Support} \\ & + \beta_{15} \mathbf{TEKMER_Support} + \epsilon \end{aligned}$$

Where X represents the set of covariates on the right side of the equation, ε is the random error term, and $\Pr\{\text{Success}=1|X=x\}$ denotes the probability of being a successful woman entrepreneur depending on the set of $X=x$. Unknown parameters above are estimated by maximum likelihood approach.

In the above model, we include two control variables which are the performance score of the technoparks and the sector that the venture is operating in. We also include 12 independent variables as proxies of cultural, social and economic capital in accordance with Bourdieu (1986)'s framework. With regard to cultural capital, we include parents' education level, having a successful entrepreneur in the close family, the age of the entrepreneur at the time of start-up, whether or not the entrepreneur had attended a private school, the entrepreneur's education level, the entrepreneur's previous work experience, and previous entrepreneurship experience in our model. In terms of social capital, we integrate into the model the number of partners, the age of the venture, and whether or not the venture has been involved in any joint R&D projects with other firms or universities. Finally, for economic capital we use three variables which are the savings before starting a venture, the scope of financial support received from family, and whether or not the venture received support from "Technology Development Center (TEKMER)" program funded by the SME Development Organization. Detailed explanations regarding the control and independent variables of the logistic model, and relevant findings from previous studies are provided in the next section.

Control and independent variables

Performance score of the technoparks: There has been an increasing interest in the impact of location on firms' performance (Blake & Hanson, 2005; Canina, Enz, & Harrison, 2005). The underlying assumption is that firms that are located in clusters have competitive advantage that is provided through economies of scale and economies of agglomeration (Cansiz, 2010, pp. 16–25; Krugman, 1998; Porter, 1990). Some researchers report that firms located in clustered regions are more innovative and successful, whereas others find no significant impact of location on the performance of ventures (Cansiz & Ulusoy, 2017). We consider that technoparks with higher performance scores would provide greater economies of scale and scope for

its ventures. Consequently, we add 2015 performance scores of technoparks that were measured and announced by the Ministry of Science, Industry and Technology¹. The scores were calculated using variables pertaining to the collaborative activities realized between the university and industry, performance in terms of intellectual property rights and technology transfer, R&D outputs, and commercialization and internationalization of R&D outputs.

Sector: As of 2016, 54 percent of the firms in technoparks are operating in software and information and communication technologies sectors in Turkey. A group of studies report that industries have impact on the performance of new ventures (Bloodgood, Sapienza, & Almeida, 1996; Chamanski & Waago, 2001; Lee, Lee, & Pennings, 2001; Song, Podoyntsyna, Van Der Bij, & Halman, 2008). Although Cansiz and Ulusoy (2017) find no significant performance difference between the ventures that are operating in ICT sectors and in other sectors, we add a dummy variable to control the probable impacts of sectorial factors on entrepreneurs' performance. The value equals 1 if the venture is operating in these sectors, and 0 otherwise.

Parents education status: Parents are considered as the first and the principal socializing agents in an individual's life (Maccoby, 1992). Being part of the cultural capital, the skills, knowledge and employment status of parents have an impact on several spheres of an individual's life (Cansiz, 2014, p. 61). Cansiz and Ulusoy (2017) use the education level of both mother and father separately in their model and find no statistically significant relation between these parameters and entrepreneurial success. Nevertheless, we consider that having parents with at least an undergraduate degree might be positively associated with entrepreneurial success. Since the education levels of both father and mother are found to be highly correlated in our data set, we decide to create an interaction term by multiplying these two variables. We use a dummy variable whose value is 1 if both parents hold at least an undergraduate degree, and 0 otherwise.

Existence of successful entrepreneurs within the close family: Some studies report that having entrepreneur parents increases the tendency of children to become

1 The scores are retrieved from the official website of Turkish technoparks through: <https://teknopark.sanayi.gov.tr/Content/PerformansEndeksi>, last access in May 31, 2017.

entrepreneurs themselves (Cansız, 2014, pp. 64–67; Delmar & Gunnarsson, 2000; Dunn & Holtz-Eakin, 2000). Parents transmit their work experience, reputation, or other cultural capital to their offspring (Dunn & Holtz-Eakin, 2000). Other studies find positive relation between entrepreneurial success and having a successful entrepreneur in the family (Cansız & Ulusoy, 2017). We include a dummy variable whose value is 1 if there is a successful entrepreneur in the entrepreneur's closely related family, and 0 otherwise.

Age of entrepreneur during the start-up: Several factors such as motivation, experience, established networks and skill sets might vary between different age cohorts. According to a study by Davis and Shaver (2012), young men are found to have higher growth intentions compared to women and older men. Kautonen (2008) reports that approximately 10 percent of the older entrepreneurs are driven to self-employment by necessity, which is lower than that of the younger entrepreneurs. However, Cansız and Ulusoy (2017) find no statistically significant relationship between the age and success of entrepreneurs. To understand whether or not the age of the entrepreneur has a significant impact on her performance, we include the age of entrepreneur at the time of start-up as a continuous variable.

Attending a private school: Studies suggest that there is difference in terms of success and long-term achievement between students who attended private schools and those who attended public schools. West and Woessmann (2010) report that countries that have a higher share of students in private schools, achieve higher scores on international assessments. Other studies state that students who attend private schools are more successful and have higher levels of educational attainment (Altonji, Elder, & Taber, 2005; Frenette & Chan, 2015; Horowitz & Spector, 2005). At the same time, they also report that this outcome is significantly related with the socio-economic difference between students who attend private schools compared with those who attend public schools. Generally, students in private schools are more likely to have socio-economic characteristics that are closely associated with academic success. Cansız and Ulusoy (2017) find no statistically significant relationship between attending a private school and entrepreneurial success. In our model, we use a dummy variable whose value is 1 if the entrepreneur had attended a private school during her formal education time, and 0 otherwise.

Education level of the entrepreneur: Some studies reveal that higher education levels are positively related to entrepreneurial success since having better education enhances cultural capital (Cansız, 2014, 49–59; Kolvereid, 1992). Sullivan and Marvel (2011) find that formal education fosters innovation in technology ventures, and the level of innovations in a venture is positively correlated with advanced degrees. However, the research conducted by Cansız and Ulusoy (2017) shows that there is no statistically significant relationship between the entrepreneur's education level and the venture's success. We incorporate the education level of entrepreneurs into our model as a categorical variable which indicates whether the entrepreneur has an undergraduate, masters or doctorate degree.

Having previous work experience and entrepreneurship experience: Former studies point out that entrepreneurs' holding previous business or industry experience has a significant positive impact on the performance of new ventures (Brush & Hisrich, 1991; Cansız, 2014, pp. 85–86; Cansız & Ulusoy, 2017; Lerner, Brush, & Hisrich, 1997; Marlow, 1997; Singh, Kumra, & Vinnicombe, 2002; Song et al., 2008). Nevertheless, other studies report that few women entrepreneurs have previous work experience (Audretsch, 2012; Bowen & Hisrich, 1986) and they have less business experience than men (Fischer, Reuber, & Dyke, 1993). We incorporate two dummy variables to the model to capture whether the entrepreneur's having previous work experience and entrepreneurship experience are associated with their business performance.

Number of partners: Firms established by a team are found to grow faster than firms founded by individuals (Almus & Nerlinger, 1999). Number of partners and their experience in terms of different business functions are identified as critical success factors for new ventures (Cansız, 2014, pp. 94–95; Chamanski & Waago, 2001; Song et al., 2008;). Cansız and Ulusoy (2017) also find that having a partner is significantly and positively related to the success of ventures operating in technoparks in Turkey. To identify whether or not the number of partners has an impact on the entrepreneurial success, we add a categorical value which is equal to 1 if the entrepreneur has no partners, 2 if she has 1 or 2 partners, and 3 if she has 3 or more partners.

Age of the venture: While some studies find the number of years a firm has been active to be one of the success factors for new ventures (Song et al., 2008), others identify

that the growth rate decreases with age (Hall, 1987). The growth motivation of the entrepreneurs also changes with the age of the venture. For example, in a study that took place in Sweden, Dalborg (2015) observes that in women-owned business, growth is initially extrinsically motivated and intrinsically motivated later on. We integrate the age of the venture as a categorical variable whose value is set as 1 for ventures that are less than 6 years old, 2 for ventures that are between 6 and 10 years old, and 3 for ventures that are 11 or more years old.

Performing joint R&D projects with other firms or universities: Several studies identify a positive relation between collaborative R&D activities and the firms' performance (Cansız, 2014, pp. 112–113). Cincera, Kempen, von Pottelsberghe de la Potterie, Veugelers, and Villegas (2003) identify that a firm's productivity growth increases through participation in international R&D cooperation. Belderbos, Carree, and Lokshin (2004) confirm that R&D collaborations with competitors and universities increase the growth of sales. Lööf and Broström (2008) point out that collaboration between universities and firms increases the innovative sales per employee. Song et al. (2008) report that R&D alliances are negatively associated with performance for independent ventures, but positively associated for ventures of a mixed origin. To analyze the relationship between performing collaborative R&D projects and entrepreneurial success, we use a dummy variable whose value is 1 for firms that have participated in collaborative R&D projects and 0 otherwise.

Savings before starting a venture: Previous literature suggest that women experience greater difficulty in accessing finance compared to their male counterparts (Buttner & Rosen, 1989; Carter & Rosa, 1998; Coleman, 2000; J. Tan, 2008). Since they have several negative experiences in seeking funding, they negatively perceive banks as sources of finance (Poggesi et al., 2016; Roper & Scott, 2009). In this context, personal savings have become an important source for start-up firms, especially for women entrepreneurs. Gundry and Welsch (2001) report that high-growth entrepreneurs are more likely to use their personal savings at the start-up phase. We include the amount of savings owned by entrepreneurs before starting their ventures as a categorical value in our model. Its value is set to 1 for the entrepreneurs that had less than TL 100,000; 2 for the ones that had savings between TL 100,000 and TL 500,000; and 3 for the ones that had savings higher than TL 500,000.

Receiving financial support from the family: Empirical evidence suggest that receiving financial support from parents increases the tendency of children to become entrepreneurs (Dunn & Holtz-Eakin, 2000). Cansiz and Ulusoy (2017) identify a positive relation between entrepreneurial success and receiving financial support from the family. However, Anna et al. (2000) report that financial support received from others was less of an important factor for women entrepreneurs working in nontraditional businesses. In the model, we use a continuous variable whose value is set to 1 for the entrepreneurs who did not receive any financial support; 2 for the ones who received partial financial support; and 3 for the ones who received significant financial support from the family.

Receiving public support: Access to financial resources at both start-up and expansion phase is a hindrance for women entrepreneurs, especially for those operating in non-traditional sectors (Anna et al., 2000). In this respect, the availability of public support programs that support women entrepreneurs is significant. Gundry and Welsch (2001) report that apart from The Small Business Administration Loan Program, there are no differences between high-growth and other firms in terms of their use of different sources of funding. We use a dummy variable whose value is 1 for firms that received support from TEKMER program, and 0 otherwise.

Within the scope of this study, the research question will involve the investigation of validness following three hypotheses:

Hypothesis 1: The performance of women entrepreneurs working in technoparks in Turkey is associated with their cultural capital.

Hypothesis 2: The performance of women entrepreneurs working in technoparks in Turkey is associated with their social capital.

Hypothesis 3: The performance of women entrepreneurs working in technoparks in Turkey is associated with their economic capital.

FINDINGS

The descriptive statistics and correlations are presented in Table 1 and Table 2, respectively. 44 out of 196 women entrepreneurs on whom the survey was conducted

are identified as successful entrepreneurs. The correlation matrix shows that there are no high correlations among selected predicting variables, which contributes to the robustness of the model.

In terms of variables that are used as a proxy of cultural capital, only that of having previous work experience is found to be significantly and positively associated with the entrepreneurs' performance. Remarkably, women entrepreneurs who have previous work experience are almost twice as likely to become successful, which is in keeping with the previous literature (Brush & Hisrich, 1991; Cansız, 2014, pp. 85–86; Cansız & Ulusoy, 2017; Lerner et al., 1997; Marlow, 1997; Singh et al., 2002; Song et al., 2008). Unlike the findings of Sullivan and Marvel (2011) who report a positive relation, and Cansız and Ulusoy (2017) who report no significant relationship, our results point out a negative relation between the highest level of education that the women entrepreneurs received and their business performance. Compared to the women entrepreneurs who have an undergraduate degree, those who hold a doctorate degree are 25 percent less likely to attain entrepreneurial success.

By contrast, 82 percent of the women entrepreneurs in our data set who hold a doctorate degree are found to be faculty members in the universities. Cansız (2016, pp. 317–323) reported that academic entrepreneurs cannot achieve strong business performance due to several factors such as their habitus not favoring entrepreneurial activities, lecturing and research activities coupled with entrepreneurial activities creating an immense workload on academic entrepreneurs, and the tendency to prioritize scientific principles over commercialization efforts. In this context, our findings also supported the idea that coming from an academic background might hinder business performance. Finally, having an entrepreneur in the close family, parents' education level, attending a private school, previous entrepreneurship experience, and age at the start-up are not found to be significantly related to entrepreneurial performance.

As regards to social capital factors, number of partners and age of the venture, these are found to be significantly and positively associated with successful performance in keeping with previous studies (Almus & Nerlinger, 1999; Cansız & Ulusoy, 2017; Chamanski & Waago, 2001; Song et al., 2008). Our results indicate that women entrepreneurs who have 3 or more partners are almost five times more likely to

become successful compared to those with no partners. In the overall model, the highest odds ratios are calculated for the age of venture, indicating that ventures which can be sustained during the first ten years of their start-up phase are quite likely to become successful. Our results show that ventures that are older than 11 years are six times more likely to become successful as compared to the younger ventures. Meanwhile unlike previous studies (Belderbos et al., 2004; Cincera et al., 2003; Lööf & Broström, 2008) that indicate a positive relation between joint R&D activities and venture performance, our results do not indicate a statistically significant relation between those two variables.

In terms of economic capital, our results indicate that the performance of women entrepreneurs is not statistically related to any of the selected economic capital variables, namely the amount of their savings at the beginning of starting a business, whether or not they received financial support from their families, and whether or not they received public support from TEKMER program.

Table 1. Descriptive statistics for the data set

	Variable	Explanation	Number	Percentage
Dependent variable	Successful entrepreneurs	Yes	44	22
		No	152	78
Control variables	Technopark performance	Mean: 46.35; Std.Dev: 9.75		
	Sector	ICT or software	105	54
		Other sectors	91	46
Cultural capital	Parent's education	Both have university degrees	65	33
		Otherwise	131	67
	Entrepreneur in the family	Yes	68	35
		No	128	65
	Age at the startup	Mean: 31.84; Std.Dev: 9.13		
	Private school education	Yes	50	25
		No	146	75
	Education level	Undergraduate degree	103	53
		Master's Degree	48	24
		Doctorate Degree	45	23
	Previous Entrepreneurship Experience	Yes	66	34
		No	130	66
Previous Work Experience	Yes	74	38	
	No	122	62	

Social capital	Partners	has no partners	45	23
		has 1-2 partners	117	60
		has 3 or more partners	34	17
	Venture Age	5 years and less	104	53
		6 to 10 years	64	33
		more than 10 years	28	14
Joint R&D	Yes	115	59	
	No	81	41	
Economic capital	Savings	less than TL100,000	90	46
		TL100,000-TL500,000	64	33
		more than TL500,000	42	21
	Monetary support from family	No	38	19
		Partially	129	66
		Yes	29	15
	TEKMER Support	Yes	113	58
No		83	42	

Table 2. Correlation matrix for independent and control variables ^a

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Successful entrepreneurs	1.00															
Technopark performance	-0.01	1.00														
Sector	-0.14	0.01	1.00													
Parents education	-0.04	-0.03	-0.02	1.00												
Knew an entrepreneur	0.15	-0.08	-0.07	0.19	1.00											
Age at the startup	-0.01	-0.23	-0.20	-0.12	-0.06	1.00										
Private school	0.02	0.02	0.17	0.11	0.02	-0.08	1.00									
Education level	-0.09	0.16	-0.29	0.16	-0.06	0.22	-0.05	1.00								
Previous work	0.31	-0.01	-0.12	-0.01	0.32	0.03	-0.02	0.01	1.00							
Previous entrepreneurship	0.05	0.07	0.01	0.17	0.28	0.03	0.01	0.02	0.14	1.00						
Number of partners	0.20	-0.01	-0.10	0.05	0.17	-0.07	-0.06	0.20	0.09	0.13	1.00					
Venture age	0.22	0.06	0.08	-0.10	0.12	-0.14	-0.12	-0.25	0.13	0.00	0.04	1.00				
Joint R&D	-0.07	0.22	-0.10	0.06	0.00	-0.01	0.06	0.22	-0.18	0.15	0.09	0.07	1.00			
Savings	0.00	0.06	-0.02	0.10	0.19	0.13	0.08	0.01	0.03	0.11	-0.06	-0.03	0.09	1.00		
Monetary support	-0.15	0.02	0.12	0.02	0.08	-0.11	0.03	-0.10	-0.25	0.00	-0.06	0.13	0.06	-0.06	1.00	
TEKMER support	-0.11	0.24	0.15	0.10	-0.16	-0.10	0.00	0.04	-0.12	0.06	0.04	-0.20	0.16	0.19	0.02	1.00

Outputs of the logistic model are provided in Table 3. With respect to control variables, it is observed that the overall performance of technoparks is not statistically related to the performance of women entrepreneurs unlike the findings of previous literature. Meanwhile, our findings support the study of Cansiz and Ulusoy (2017) which report that technoparks in Turkey cannot offer services or incentives that would reward and promote high business performance. In terms of operating in ICT or software sectors, we find that it is significantly and negatively related with the performance such that women entrepreneurs who are operating in ICT or software sectors are almost three times less likely to become successful compared to those in other sectors.

Table 3. Model output^a

	Independent variables	Odds Ratio	Std. Err.	P> z
Control variables	Technopark type	1.01	0.02	0.59
	Sector**	0.35	0.17	0.03
Cultural capital	Parents' education	0.96	0.46	0.93
	Entrepreneur in the family	0.90	0.44	0.83
	Age at the startup	1.02	0.02	0.34
	Private school education	1.45	0.70	0.44
	Education level (default undergraduate)			
	Master's Degree	1.12	0.59	0.81
	Doctorate Degree**	-0.26	-0.18	-0.05
	Previous Work Experience*	2.42	1.12	0.06
Previous Entrepreneurship Experience	1.13	0.58	0.80	
Social capital	Partners (default no partner)			
	has 1-2 partners	0.75	0.41	0.60
	has 3 or more partners**	4.92	3.19	0.01
	Venture Age (default: 5 years and less)			
	between 6-10 years	1.46	0.74	0.46
	more than 10 years***	6.39	3.98	0.00
Joint R&D	0.80	0.36	0.62	
Economic capital	Savings (default less than TL 100,000)			
	between TL 100,000 and 500,000	0.92	0.46	0.87
	more than TL 500,000	0.92	0.52	0.88
	Monetary support from family	0.65	0.22	0.21
TEKMER support	0.81	0.37	0.64	
	Constant	0.10	0.16	0.15
	Prob > chi2 = 0.0000			
	Pseudo R2 = 0.2416			
	Log likelihood = - 79.1553			

^aSignificance levels: * $P < 0.1$, ** $P < 0.05$, *** $P < 0.01$.

CONCLUSION AND DISCUSSION

This study aimed to shed light on the research question of whether or not the three main types of capital (economic, cultural, social) emphasized in the entrepreneurship literature have an association with the success of women high-tech entrepreneurs. The results of the study would have two main implications: The first is that the findings will provide empirical evidence regarding the theories suggested in the entrepreneurial literature on the relationship between different capital factors and entrepreneurial performance. The second implication is that the findings will inform the decision makers who provide entrepreneurial support, such as the Ministry of Science, Industry and Technology or KOSGEB (Small and Medium Enterprises Development Organization of Turkey).

In terms of the first implication, findings from the analysis employing logistic regression model used in this study confirm that the performance of women entrepreneurs operating in technoparks in Turkey is found to be statistically associated with certain elements of cultural and social capital. However, a statistically significant distinction between successful entrepreneurs and others in terms of the selected economic capital proxies could not be identified.

In terms cultural capital elements, length of previous work experience of the women entrepreneur is found to be strongly associated with entrepreneurial success, whereas previous entrepreneurial experience does not have any significant association. The fact that previous working experience strongly affects entrepreneurial success is not surprising since it equips you with the fundamental reflexes to operate in any market. This finding is also in line with the findings of previous literature. However, the non-significance of the association of previous entrepreneurial experience on success is rather interesting, which is in contrast to the general findings of the literature. The reason for this deserves to be examined in further studies, but one reason might be that as these entrepreneurs are academically oriented, their previous entrepreneurial activities may have been confined to research and development activities, thus having shortcomings in the final product development and marketing phases. Accordingly, holding a PhD degree is found to be negatively associated with entrepreneurial success, which is likely to be related to the above-mentioned reasoning.

In terms of social capital, having three partners or more is found to be strongly associated with success, which is in line with the findings in other literature. More partners mean more cumulative social capital as well as more synergy and greater combined experience. Also, the age of the venture is found to be associated with success only when it is more than ten years. This shows that success needs time.

The above findings all indicate that accumulating experience for women entrepreneurs operating in high-tech sectors in Turkey is almost essential for success. This is also compatible with the findings of the literature. There might be three basic factors leading to this situation. First, accumulating experience might alleviate the constraints created by the cultural norms that impede entrepreneurship among women. Women who gain experience might become more self-confident and ambitious in terms of their business operations. Second, women entrepreneurs might develop their skills and knowledge, enhance their access to resources and enlarge their customer base through experience. Finally, unsuccessful firms might be forced to shut down in the early phase of their establishment, and thus firms with stronger resources and capabilities are more likely to continue their operations beyond a certain time period.

By and large, our results reveal very interesting findings with respect to the relation between the economic capital and achieving successful performance since none of the selected proxies for economic capital are found to have a statistically significant association with the successful performance. Women entrepreneurs might be paying less attention to economic factors compared to social and cultural factors and that might be an explanation for the weak link between performance and economic capital. On the other hand, it is also possible that women high-tech entrepreneurs in Turkey are not effectively using their financial resources due to several reasons such as lack of knowledge and expertise in terms of utilization of a wider range of financing sources, difficulty in terms of accessing funds, and being risk averse.

The second expected implication of this study is to enlighten the decision makers who provide entrepreneurial support. According to the findings of the study, decision makers do not need to consider previous entrepreneurial experience or advanced higher education degrees like PhDs to be essential in choosing potentially successful entrepreneurs. However, the lack of any work experience might act as a significant

limiting factor, so it seems beneficial to impose a minimum work experience requirement. Moreover, the level of economic capital of the entrepreneur is found not to be a critical factor, so decision makers are advised not to impose strict requirements on that dimension.

The study also provides some feedback for current support initiatives. First, the non-significance of the association between participating in joint R&D activities and success might indicate that such activities are carried out not for the sake of their intrinsic impacts but in order to receive financial support from the supporting public organizations. Secondly, the lack of association between TEKMER (Technology Development Center/Incubator) supports and entrepreneurial success might indicate that subsidies provided by TEKMERs do not discriminate between successful women entrepreneurs and others. Considering the scarcity of public resources channeled towards promoting technology entrepreneurship in a developing country context, we suggest that public subsidies should be redesigned to promote successful ventures to reap the benefits of fast growing and international ventures in high-tech sectors. At this stage, further and deeper analyses is required to understand the dynamics lying under this outcome and to devise new incentives. Finally, according to our findings, women entrepreneurs in the ICT sector seem to struggle. A focused analysis on the challenges faced by women entrepreneurs in the ICT sector to be conducted by support organizations is considered to be important.

Studies regarding women entrepreneurship in Turkey are still at their early stages as is reported to be the case in several other developing economies. The main focus of the available literature is on identifying the characteristics and problems of women entrepreneurs. There is significant need to perform empirical studies that link the performance of women entrepreneurs with their characteristics and with other elements of the entrepreneurship ecosystem. To meet this demand, we try to identify the association of different types of capital as classified by Bourdieu (1986) with the growth performance of ventures that are owned by women entrepreneurs and established in Turkey's technoparks. Further research should focus on identifying the underlying mechanisms that lead to poor or successful performance among women entrepreneurs. In addition, similar studies could be performed for traditional sectors to understand whether women working in high-tech and traditional sectors are both

affected by similar factors. In this way more effective policy mechanisms can be developed to enhance women entrepreneurship in Turkey.

To achieve sustainable social and economic growth, Turkey needs to promote technology-based sectors and diminish the entrepreneurship gender gap. Encouraging more women to open new businesses in high-tech sectors could be a way to meet both targets. As reported by previous studies, cultural norms such as role conflicts between their family and professional life and gender-based discrimination emerge as significant barriers facing women entrepreneurs. We believe that promoting more successful women entrepreneurs might reverse this perception.

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